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RESEARCH ARTICLE



## *Memoirs of a Spacewoman*: Naomi Mitchison's intergalactic education

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### ABSTRACT

In *Memoirs of a Spacewoman* (1962), a novel in which a space-traveling communications specialist describes her early training and career progression, Naomi Mitchison reimagines the memoir and Bildungsroman forms to depict an individual who develops not by overcoming hostile environments but by being radically transformed by her surroundings. If the classical Bildungsroman mapped the protagonist's youthful development onto the nation, Mitchison's future fiction memoir tests the novelistic means of representing maturity: there can be no ultimate reconciliation for Mary because the universe is composed of an infinite series of worlds. As Mitchison reworks the structure of the novel of development through what might – against Lukacs's “bad” infinity – be called the ‘good infinity’ of space and the expansive self, she also refigures the role of formal education. Subjective time diverges from historical time in space travel, producing ‘time blackouts’ that allow Mary and her colleagues to extend their education, along with their lives. Memoir bleeds into research publication, and Mitchison accordingly offers a new representative protagonist: the mature researcher, whose malleability and even self-erasure enable a collectively achieved – and always developing – body of knowledge.

**KEYWORDS** Naomi Mitchison; speculative fiction; female Bildungsroman; memoir; imperialism; science fiction

Naomi Mitchison's own *Bildung*, her formation as a novelist, was accomplished through time travel.<sup>1</sup> The Scottish author and political activist had until 1962 been known for her historical fiction through novels such as *The Conquered* and *The Corn King and the Spring Queen*, which won admiration from the likes of E.M. Forster and H.G. Wells.<sup>2</sup> As Jenni Calder describes these works, ‘concerned with the Classical world, with the clashes and confrontations of Ancient Greece, with the frontiers of the Roman Empire’, Mitchison's early novels reflect the Oxford intellectual

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atmosphere of her youth.<sup>3</sup> On the dustjacket for *Memoirs of a Spacewoman* (1962), Gollancz accordingly hailed it as 'her first science fiction novel'.<sup>4</sup> Told from the perspective of an explorer simply called Mary, *Memoirs* surveys the spacewoman's career as a cross-lifeform communications specialist. Set some years into the future, the novel begins with Mary's recollections of her 'first world', where her perceived talent for communications is confirmed through breakthroughs with the 'radial entities' living there.<sup>5</sup> Over the course of the novel, she describes missions to various planets, all of which demonstrate a quandary, moral and professional, that Mary must confront as she matures as a researcher. The novel concludes not with her career's end but rather when she begins a period of recovery on Terra (Earth) after the disastrous graft of a distant planet's lifeform onto her body. Throughout, the line between observer and actor blurs, and Mary's identity perpetually risks dissolving through her encounters with lifeforms that present radically different models of development and subjectivity.<sup>6</sup>

The geographic and temporal expansion of individual experience initiates the novel's complex rendering of time, as Mitchison overturns the Bildungsroman's traditional focus on youth. Published only one year after the first manned spaceflight, her future fiction presents a *retrospective* account of space exploration; in place of novelty, a field in its infancy, we witness mature reflection. *Memoirs* consequently portrays space travel as a profession driven by international and even interplanetary collaboration. As such, there is a doubling in the time of reading: that of Mary's fictional reader and that of Mitchison's own reader. Mary frequently addresses the audience of her memoir, presuming those individuals to be fellow explorers, with a shared body of knowledge. 'As you know, of course, Martians rarely speak ...' she inserts, and after she names the first planet she visited, she casually asks, 'Got there?'<sup>7</sup> In these instances, she gestures towards knowledge obtained in Mary's past but the future for Mitchison's readers. Mitchison signals that their moment is preparing the way for this expanded knowledge, for Mary observes, 'after all a cell is something of very great complexity, as we first began to realise in the mid-twentieth century'.<sup>8</sup> Mitchison thus brings her reader into the body of knowledge shared between Mary and her fictional reader; her future fiction adapts novelistic strategies for representing education by signalling the scientific knowledge yet to be attained.

In this backwards-looking novel that anticipates a future collective state, Mitchison exposes another key tension for genre categorisation, the relationship between memoir and Bildungsroman – or, we might say, the relationship between the recollecting self and the becoming self in life-writing. Mitchison contemplates this tension in her own memoirs, published one decade later, as she evaluates her childhood diaries' value to that enterprise. Because these records 'are, very properly, extroverted' and the 'diary writer sees people through their achievements', '[i]t is only from further away

that I can see inside the child'; temporal distance enables the author to capture interiority as well as exploits.<sup>9</sup> In her novel's opening, Mitchison balances the pull of past and future through Mary's use of the present tense – 'I think about ...' – a decontextualised return in the mind that stands in instructive contrast to the linearity and action of her expeditions.<sup>10</sup> Even more, through the gap Mitchison creates between Mary's future time of writing and the mid-century time of reading, we witness an *impending* transformation of not only institutions, family structures, and political relations but also the novel of formation. Mitchison treats the memoir and Bildungsroman forms as adaptable, much like the narrating explorer. What results is a future fiction memoir that goes beyond a critique of the challenges to developing oneself as an individual in the face of mid-century global capitalist, (post)imperialist forces. Mitchison instead envisions a future social and political organisation in which the Bildungsroman would once again function; rather than stalling or attenuating a narrative of individual development, as so many twentieth-century authors did, Mitchison refigures the Bildungsroman through future fiction's imaginative resources and the memoir's knowing maturity. In what follows, I begin by examining the ways in which space exploration allowed Mitchison to think beyond the Bildungsroman's traditional containers of nation and empire, as she pairs expanded spheres of identification with the explorer's extended lifespan to reconstruct the Bildungsroman's narrative structure. Next, I demonstrate that, if the classical Bildungsroman figured the representative protagonist as a young man, Mitchison presents a new protagonist for the transformed novel of development: a middle-aged, female researcher. Ultimately, I argue that Mitchison is interested less in staging the failure of the classical Bildungsroman than in staging the failure of the social and political forces that threatened and limited its model of self-formation. In imagining a future for the novel of development, speculative fiction rather than realism is Mitchison's privileged mode.

### **A new world for the modern Bildungsroman**

In Gregory Castle's account of the Irish and British modernist Bildungsroman, he interprets authors' resurrection of classical Bildungsroman structures as evidence of 'modernism's radical conservatism'.<sup>11</sup> Authors such as Virginia Woolf, James Joyce, and Oscar Wilde used that eighteenth- and nineteenth-century form to critique 'the constrictions of overly rationalized and bureaucratized societies' while also challenging from within the genre the Bildungsroman's 'ideological subtexts' and formal conventions – particularly with regard to class, gender, and imperialism.<sup>12</sup> Indeed, failure is key for Castle's schematisation: that older understandings of subjectivity and means of reconciling the individual to the community were seen to have eroded

gave the genre 'a new sense of purpose'.<sup>13</sup> In Castle's modernist Bildungsroman, the aesthetic education reclaimed from the Bildungsroman's German roots comes to the fore, with the protagonist's 'inharmonious development' replacing ultimate 'harmoni[sation] with his sociohistorical world'.<sup>14</sup>

As Castle concludes his study, he considers how the modernist Bildungsroman 'raise[s] new questions about the future of the form'.<sup>15</sup> As such, he argues that modernist adaptations were not only radically conservative but also forward-looking. He hazards future paths of development, with great import for Mitchison's marriage of speculative fiction and the Bildungsroman:

[D]oes the modernist Bildungsroman enact symbolic legitimations that have more to do with some *future* or otherworldly dispensation – 'the loveliness which has not yet come into the world,' as Stephen Dedalus puts it (p. 251) – than with the world as it exists in the present? Does the sense for beauty displace the energy of youth as the sign for modernity, as Wilde's *Picture of Dorian Gray* suggests? Or bearing in mind Woolf's achievement in *Mrs. Dalloway*, can we speak of a shift in which belatedness and middle age come to characterize modernity? These questions all point in the same direction, toward a genre revived by a critical vocation . . . . Despite the radical turn toward nonidentity and the near annihilation of the subject, [the modernist Bildungsroman] produces new 'technologies of the self' and advances new solutions to the problems of identity and society, new harmonies to accommodate the new ways of new worlds.<sup>16</sup>

Though Castle presents a series of possibilities, Mitchison's first foray into science fiction accomplishes all these renovations of the Bildungsroman. Through the future fiction memoir, Mitchison not only engenders a '*future* or otherworldly dispensation' but also 'displace[s] the energy of youth as the sign for modernity', substituting 'belatedness and middle age'. She transports the modernist Bildungsroman's 'Janus face' into the future, where the 'new solutions to the problems of identity and society' and 'new harmonies' have already been achieved, with conflict in this novel primarily a problem of insufficient knowledge.<sup>17</sup>

While the 'new worlds' are mostly figurative in Castle's account, Mitchison renders these as *actual* new worlds by using science fiction to reimagine the Bildungsroman. In doing so, she alters the scale of the individual's journey and the community under examination. If the classical Bildungsroman maps the protagonist's youthful development onto the nation, and if Castle's modernist Bildungsroman uses that form to question the possibilities for cultivating the self under colonialism (against the background of Irish nationalism, for Joyce and Wilde especially), Mitchison's future fiction memoir offers a revised model of both subject formation and collective development.<sup>18</sup> Each new world, with its own lifeforms and moral codes, tests not only the spacewoman but also the novelistic means of representing

maturity through a protagonist's reconciliation with the larger community; there can be no resolution for Mary because the universe is composed of an infinitely large number of worlds.<sup>19</sup>

This problem of expansion, as modern authors adapted the Bildungsroman to turn-of-the-century geopolitics, is one Jed Esty explores to great effect in *Unseasonable Youth*. Already a major part of Castle's study, imperialism is for Esty the most important factor in authors' efforts to reconfigure plots of individual and political development. As Esty demonstrates, late nineteenth-century and early twentieth-century novels are remarkable for their insistent depiction of 'frozen youth'; against the nineteenth-century 'developmental paradigm', these literary works 'tend to present youthful protagonists who die young, remain suspended in time, eschew vocational and sexual closure, refuse social adjustment, or establish themselves as evergreen souls via the tender offices of the Kunstlerroman'.<sup>20</sup> The allegorical relationship between self- and national development that defined the classical Bildungsroman is accordingly disrupted by the claims of empire upon the self: two conflicting times – 'the open-ended temporality of capitalism and the bounded, countertemporality of the nation' – emerge as 'a vivid struggle between youth and adulthood' in the novel.<sup>21</sup> Youth comes to represent 'the dilated/stunted adolescence of a never-quite-modernized periphery', as '[u]nseasonable youth', a matter of both 'character and plot', allowed authors to interrogate the 'new, open-ended phase in imperial/finance capitalism'.<sup>22</sup> The 'antidevelopmental temporality' of these narratives reveals a significant socio-political dimension to modernists' complex treatment of time and aversion to plot, for modernist formal practices arise from a revised understanding of subjectivity under imperialism.<sup>23</sup>

Empire certainly played a key role in Mitchison's own formation and education, as did evolution. Donna Haraway summarises the intellectual legacy of progress and development that shaped Mitchison's early years:

Daughter of the important British physiologist, J. S. Haldane, and sister of one of the architects of the modern evolutionary synthesis, J. B. S. Haldane, Mitchison could hardly have avoided her large concerns with forms of life. She came, in short, from the social world that produced the Darwins and the Huxleys, those familial arbiters of authoritative terran and otherworldly conversations. Sexual experimentation; political radicalism; unimpeded scientific literacy; literary self-confidence; a grand view of the universe from a rich, imperialist, intellectual culture – these were Mitchison's birthright. She wrote that legacy into her spacewoman's memoirs.<sup>24</sup>

Like Esty, Haraway connects imperialism, defined by its expansiveness, to knowledge, subjectivity, and the literary imagination, in the form of the 'literary self-confidence' that Mitchison inherited alongside her 'grand view of the universe'. Haraway ties this imperial legacy to contemporary science, for 'imperialism ... was the silent, if deeply constitutive, axis in Victorian debates

on “man’s place in nature”.<sup>25</sup> In other words, harmonisation of the self and the social world was for Mitchison inseparable from the question of the self in the natural world, the very particular environments in which Mitchison’s spacewoman places herself. As Haraway argues of *Memoirs*, ‘Mitchison set her xenobiologist a most interesting task: to make contact with “other-worlds,” adhering to only one serious restriction in the deployment of her psychological, linguistic, physical, and technological skills – noninterference’.<sup>26</sup> In spite of this expansion of the range of the individual, the demands the explorer’s code places on Mary prohibit full integration into the social worlds she records.

These guards against interference are for Mary the sign that the old, imperialist age has passed, though Mitchison surely drew upon the narrative templates of empire for modelling Mary’s development amid a world with ever-expanding boundaries.<sup>27</sup> Mary’s upsetting journey to a colonised planet underlines the likeness between space exploration and imperialism, as the colonisers use the native population as a food source to supplement their home planet’s scanty resources. ‘The Epsies’, Mary observes, ‘had colonised very vigorously, and at a period of moral crudity, which luckily humans had lived through and put behind them by the time they reached the technical excellence in space travel that the Epsies had achieved earlier’.<sup>28</sup> The colonisers provide a link to a now-distant part of human history, and disgust tests Mary’s capacity for non-interference and neutrality: ‘one has to make allowances for the colonist mentality. We know about it from our own history, but it was the first time I had met it in real life’.<sup>29</sup> Colonialism causes individual degeneration, revealing a disjunction between technical achievement and standards for ethics and behaviour. Of the carnivorous eating habits of a communicant, Mary observes, ‘Silis told me afterwards that in their home world the Epsies did not drip. But Glitterboy was a colonist’.<sup>30</sup>

Mitchison juxtaposes this reminder of now-extinct earthly practices with the international and even interplanetary partnerships that define Terran space exploration.<sup>31</sup> If the ‘colonial contact zones’ Esty identifies were sites of perpetual youth in turn-of-the-century coming of age narratives, the new worlds encountered by explorers in this post-imperialist age are sites of harmonisation, proof of Terran maturity.<sup>32</sup> Through future fiction, Mitchison represents development that is always already achieved; it is the memory of past colonialism that is important, as police fend off ‘lapses and atavisms: occasional colonial difficulties and all that’.<sup>33</sup> Colonialism in this way symbolises collective degeneration as well, the thing against which authority is meant to guard. The goal of education is interplanetary harmonisation, ‘the elementary solar loyalties that are common to all our childhoods’.<sup>34</sup>

In this transition from colonial to planetary contact zones and from empire-building to space exploration (with its code of non-interference), Mitchison refigures the expansion that, in the novels Esty cites, represents



a 'capitalism [that] never rests', the economic engine of imperialism and the narrative engine of unresolved plots.<sup>35</sup> In *Memoirs*, intellectual accumulation, a wealth shared rather than hoarded, supersedes material and financial accumulation. For this reason, expanding knowledge drives the plot of this narrative of maturity. Though one of Mary's voyages encounters disaster because of the greed of mineralogists sent by 'the Ministry', the economic basis of space travel is largely unaddressed, apart from rare references to its great expense.<sup>36</sup> Economic development may exist as subtext, with 'non-explorers' continuing their work on Terra, but that development is no longer the narrative scaffolding of this future fiction, in which Terrans are both visitors and those visited by extra-terrestrial explorers.

By using this collective, otherworldly exploration and research to provide novelistic structure, Mitchison reclaims the narrative of progress central to the classical Bildungsroman even as she upends the 'mainstream developmental discourses of self, nation, and empire' that permeate Esty's key texts.<sup>37</sup> As he explains, the globe provided a geographic limit to economic expansion, with great import for narrative development: 'With no new territory to annex, the European powers faced new pressure to cast the extant colonies as eternally adolescent, always developing but never developed enough'.<sup>38</sup> In such a way, 'imperial growth' was limited by its planetary container, and the imperative for empires to treat these territories as perpetually underdeveloped produced literature that enacts this perpetual youth.<sup>39</sup> That period's geopolitics stand in stark contrast to the endlessly expanding horizons of Mitchison's speculative fiction. While Esty places modernism 'at the dialectical switchpoint between residual nineteenth-century narratives of global development and emergent twentieth-century critiques of universalist and evolutionist thought', Mitchison reclaims that thought – and its corresponding narrative forms – for a yet-unrealised political world.<sup>40</sup> Rather than ironise those narrative structures, Mitchison uses future fiction to reconceptualise both universalism and evolution by treating these concepts literally as well as figuratively: she expands novelistic scale to that of the universe and makes her protagonist an expert in evolution, able to adapt her communication to the physiological structures of endlessly differentiated species in endlessly differentiated worlds.<sup>41</sup> In place of the impasse in Esty's 'antidevelopmental fictions', Mitchison envisions a political world fit to host Bildungsroman narratives of progress.<sup>42</sup> Looking back on colonial history, *Memoirs* restarts the expansion of the self while relocating the places of 'uneven development' from human communities to other planets and species.

Mitchison accordingly signals development within social values, as well as within what constitutes maturity and what work makes for a responsible citizen; space exploration is necessary precisely because the impasse of imperialism has been resolved:

The more we explore, the more problems meet us. Yet would we have it otherwise? I think not. Humans were beginning to run out of serious moral problems about the time that space exploration really got going. The mid-twentieth century had been full of them, but when most of them proved to be quite easily soluble – given, of course, that solution really was desired – there was quite a danger of moral boredom. We can't say that now!<sup>43</sup>

In this introduction to the novel and the spacewoman's work, Mitchison emphasises that development will be figured primarily in terms of developing an increasingly complex shared moral code. Explorers may feel planetary and 'solar loyalties', following the cessation of national conflicts and the advent of intergalactic space travel, yet they train themselves to continue to expand their imagined community, along with their moral code, by rejecting any rigid models of identity. Thus, while Esty's novels are divided between the time of the nation and that of empire, *Memoirs* is pulled between Terran time and universal time, as well as between the Bildungsroman's narrative time and that of the fictional memoir. By abolishing the nation as allegorical counterpart for the individual as well as narrative container, Mitchison resists closure itself. If colonial Bildungsromane 'so systematically omit the process of maturation', Mitchison offers what could be called frozen adulthood, as she 'omit[s] the process of maturation' from the other side of the divide.<sup>44</sup> This is true for both individual and historical time: in post-imperial Terra, important narrative material comes from adulthood, for only then can individuals undertake space exploration and full moral development occur. In this way, we might productively read Mitchison's narrative innovations against research on physiological maturity by contemporaries such as zoologist Julian Huxley, a friend of Mitchison, who studied the axolotl, a salamander that retains larval characteristics into adulthood and thus defies typical developmental trajectories – yet whose metamorphosis can be induced through thyroid from another species.<sup>45</sup> Adolescence is indeed elongated in *Memoirs*, since the explorer's preparatory training does not end until age 'thirty or thirty-five', yet Mitchison focuses on a later stage of extended maturation for the explorer, which would be impossible without scientific innovation.<sup>46</sup> By doing so, she refigures adulthood and maturity, biological and narrative. Even as she contemplates the restrictions that the human body places on language and perception, Mitchison portrays a human life cut free from previous limits of space and time. In *Memoirs*, it is the expanding spheres of identification, far beyond the nineteenth-century nation's premise of shared language (among other markers), that enable this extended time of development.

By refiguring development, Mitchison resists linear plots, but she does so through uncoupling subjective time from historical time – or, as Mary calls it, 'clock years'.<sup>47</sup> Such a move stands in contrast to Esty's modernist texts, which are 'stunning narrative experiments that break up and reorganize –

without seeking fully to banish or destroy – linear, historicist time as the organizing principle of form, biography, and history itself; while the relationship between ‘historicist time’ and individual time is remade, it is nonetheless preserved.<sup>48</sup> The physics of space travel explode that relationship. In the first paragraph of *Memoirs*, Mary reflects, ‘I wonder sometimes how old I would be if I counted the years of time blackout during exploration. It would be an alarming thought if that kind of thought happened to alarm me’.<sup>49</sup> She presents this disjunction of subjective time and historical time as potentially disorienting, only to negate that possibility. Through the extra years Mary gains through ‘time blackout’, suspension takes place in adulthood rather than adolescence:

[N]aturally when I speak of years I am talking in terms of subjective years. Clock years have, after all, ceased to make sense, though we use them in childhood and adolescence. They must have been useful at some time, but that was when we were still at the mercy of clocks.<sup>50</sup>

Coming of age for the explorer means shedding ‘clock years’. Adulthood is the point at which the self and the world rupture rather than harmonise, for only in childhood do subjective time and historical time align; maturity is this narrative’s beginning, rather than its conclusion. Mitchison consequently portrays a new opportunity for continuous development within maturity.<sup>51</sup> What this means is that each explorer exists within and regulates his or her own time, and thus narrative time exists apart from historical time.

Such a move unsettles the theoretical underpinnings of the novel as a genre, for this infinity represents opportunity, not threat. Key for Esty’s schematisation is Lukács’s ‘bad infinity’, adapted from Hegel. “The novel overcomes its ‘bad infinity’ by recourse to the biographical form” becomes a lens for understanding the political as well as formal basis of these antidevelopmental novels.<sup>52</sup> While the timespan of an individual life and the limits of the nation work together in the realist novel ‘to enclose the bad infinity of a narrative that would otherwise have no objective limits’, modernists developed their own strategies to counter political, economic, and narrative ‘bad infinity’ in a period of globalisation: ‘The trope of unseasonable youth’ provided one potent response, for it ‘establish[ed] the conditions for a provisional aesthetic solution – the metabildungsroman, which encodes the impossibility of representing global capitalism’s never-ending story via the offices of finite biographical form’.<sup>53</sup> Mitchison, however, transforms this ‘bad infinity’ into what might be called the ‘good infinity’ of space exploration, and the researcher’s expanded life presents quite a different challenge to novelistic representation, one that prompts Mitchison to merge Bildungsroman strategies with speculative fiction’s more open-ended form.

In line with this uneasy hybridisation, critics have debated whether Mitchison's novel provides a clear plot within Mary's adulthood or whether it presents 'a series of related anecdotes', with the *Encyclopedia of Science Fiction* classifying *Memoirs* as 'a ruminative picaresque'.<sup>54</sup> I would argue that the looseness of *Memoirs* is a calculated formal strategy: the novel's episodic qualities place value on *continued* self-development. Mitchison ultimately foregrounds the reflective subject over the adventures themselves, as she devotes significant attention to periods when Mary pauses her exploration. Mary's narration of the time spent *between* new worlds is in this way crucial to Mitchison's construction of the text, especially in regard to education. Reworking narrative structure through expanding both the individual's lifespan and the knowledge she can attain, Mitchison refigures formal education's role in the novel of development, for 'time blackouts' allow Mary and her colleagues to prolong their education, along with their lives: 'one can take consideration of data as well as pure meditation into time blackout and it will fall into order, will crystallise, will show its essential form, while the somatic frame of the considering mind is at complete rest, not ageing'.<sup>55</sup> Time blackouts extend the malleability of the mind; knowledge can be gained without aging. This 'deep-layer education' is for Mary an expanded selfhood, a state in which one's 'curiosities have all been enlarged extra-terrestrially'.<sup>56</sup> Education takes place not simply in time but often outside time, and thus the greatest punishment an explorer can receive is to be 'bound to time'.<sup>57</sup>

If space exploration means exploring moral problems via extended lifespans and educations, the expedition to which Mary devotes the most narrative space reveals much about Mitchison's understanding of her own experimentation with novelistic form, as the episode's central moral problem concerns the value of individual development. On an all-female expedition, Mary focuses on a species whose larval form the explorers dub 'caterpillars' and whose mature, flying form they dub 'butterflies'. The members observe butterflies trying to prevent caterpillars from practicing acts that bring fulfilment, sexual and cultural. The butterflies believe that these behaviours threaten their survival as adults, for they cause the fertilisation of eggs (the laying of which kills butterflies) and deadly underdevelopment of wing structure. The butterflies invite explorers to view one of a few select unfertilised individuals, thought to be able to live forever. The beauty and perfection of this butterfly send the explorers into a trance-like state. Mary describes the feeling as 'unswerving optimism based on almost arrived-at universal perception and insight', which is 'of course, a negation of the human condition, though something to which we have struggled a little way'.<sup>58</sup> She sees something of human aspiration in this butterfly, though its lengthened life is such that it suggests 'a negation of the human

condition'. The butterfly comes to symbolise an extreme form of individual development, enabled by its extended (possibly infinite) life:

This one apparently remembered an earlier stage of development, clearly, however, as a butterfly only. It looked forward to further development, but we were completely baffled as to what this might be; perhaps there might even be intellectual states which were far beyond our own.<sup>59</sup>

The butterflies resent the death of their fertilised peers (a fate they will likely encounter individually) because death represents unfulfilled potential. In this memoir, Mary portrays butterflies' memory as a record of *adult* development, paired with an anticipation of 'further development'. Yet the butterflies' tactics divide the mission, for one young explorer, Françoise, condemns the seeming tyranny of butterflies' attacks on caterpillars' social world, their privileging of future attainment and maturity of the few over the present well-being of the adolescent many. This explorer attempts to reverse butterflies' fixation on development within maturity by convincing them 'that these special individuals, by whom they set so much store, did not live for ever. The only immortality was in egg-laying and the continuation of life through the larval form'.<sup>60</sup> Françoise thus substitutes the infinity of the species – continuity through reproduction, the mere repetition of lives – for the infinity of individual lives, and she kills the butterfly who might otherwise have lived forever as an example to others. In doing so, she dooms herself to a life unextended by time blackouts, one in which, like the caterpillars she favoured, reproduction is the only means of extending the self. In this central episode, where one infinity is weighed against another, the 'biographical form' central to Lukács's theorisation of the 'bad infinity' of the novel meets its inverse, the 'bad infinity' of the endlessly lengthened life. In Mitchison's future fiction memoir, the story of caterpillars and butterflies is more than just a moral problem; it allows her to reflect on her manipulation of biographical form and the extent to which the Bildungsroman and the memoir may overvalue the cultivation of (extraordinary) individuals. In doing so, Mitchison confronts her hybridisation of the Bildungsroman and future fiction, for this episode suggests that much-anticipated future development – individual and collective – could be an illusion, a 'spurious infinity' of sorts for both the political imagination and the novel. What may have been created is a Bildungsroman for a world that will never exist.

### A new representative protagonist

Mitchison's eschewal of realism affected more than just her narrative structure; it also yielded a new representative protagonist for the novel of development. In her account of twentieth-century female Bildungsromane, Maroula Joannou voices a common critical understanding of gender in

classical Bildungsroman: 'The coming-of-age journey ... is based on the assumption of the male self as the universal self'.<sup>61</sup> Efforts to replace these gendered narratives, particularly the entrenched romance plot of realism, have produced 'a variety of non-realist genres such as the gothic and the grotesque, the utopian and the dystopian, the fantastic, the fable and the fairy tale'.<sup>62</sup> Indeed, Jennifer A. Wagner-Lawlor identifies postmodern feminists' heavy reliance on speculative fiction as they reformulated the Bildungsroman, part of these authors' wider pairing of irony and utopian thinking.<sup>63</sup> 'Set in historical moments that are not merely postcapitalist and postmodern, but indeed postapocalyptic', texts by Angela Carter, Octavia Butler, and Nalo Hopkinson have 'intentionally destabilized' 'the ideal and ideological teleologies of a classical bildungsroman text'.<sup>64</sup> Feminist future fiction thus introduces a new time as well as new social worlds to the Bildungsroman, and, along with these postapocalyptic settings, the protagonists of the texts Wagner-Lawlor examines refigure education and bodies of knowledge, for '[b]lind conformity to traditional knowledge systems proves foolish, if not deadly' for these characters.<sup>65</sup>

While Mitchison certainly used future fiction to rewrite gendered conventions, *Memoirs* does not rely upon irony and apocalypse to figure this change. Gender trumped national and political affiliations in Mitchison's understanding of subjectivity – "my feminism is deeper in me than, say, nationalism or socialism" – yet her emphasis is ultimately on worlds and narrative structures that work rather than worlds and structures that do not.<sup>66</sup> Much as she imagined a post-imperial expansiveness, so too does she imagine a scientific community that values women's achievement and supports their intellectual development; her protagonist is integrated rather than marginalised.<sup>67</sup> Mitchison accordingly offers a mature, female researcher as the representative Bildungsroman protagonist for this new world. Through setting her sights on the universe, Mitchison ponders the degree to which a universal model of development could exist, and the extent to which development could be modelled novelistically through cooperation rather than conflict.

The time of narration in Mitchison's fictional memoir allows her to make this shift to the mature woman as figure of development. This is partially a pre-existing convention of the Bildungsroman: as Tobias Boes has noted, novels like *Jane Eyre* and *Great Expectations* use the perspective of the 'older and wiser' protagonist to narrate that character's formation, not unlike Mitchison's mature spacewoman.<sup>68</sup> Yet Mitchison treats a researcher's adulthood as the stage most worthy of narration:

An aged explorer has so much experience, has seen and had to think about so much that he or she is as impressive as the great religious and political buildings of the Terran and Martian past, many angled, lovingly decorated, full of

spaces for intense and special uses. Peder is like that; one can explore him endlessly, always learning something new.<sup>69</sup>

Mary depicts the mind of the mature and educated explorer as an object itself worthy of exploration. The knowledge gained by these figures has replaced other forms of measuring human achievement; the developed self is now the monument. At the same time, Mitchison's interest in the fluid adult self leads her to resist the stability that this architectural comparison suggests by denying the closure of retirement to her protagonist: while Peder serves as an emotional and professional reference point for Mary, her career is still developing.<sup>70</sup>

That a researcher is representative protagonist for this new world goes far beyond *Memoirs's* status as science fiction. Against the classical Bildungsroman's focus on what Castle calls the 'aesthetico-spiritual', Mary's biology credentials allow Mitchison to emphasise the corporeality of communication and, thus, harmonisation.<sup>71</sup> The same year she published *Memoirs*, Mitchison edited a collection called *What the Human Race is Up to*, which provided a snapshot of the state of many different fields, as they increasingly drew upon each other. 'Thirty years ago' she writes in the introduction, 'it was still possible to think of the main body of knowledge as something reasonably solid and secure', but those in the mid-century were 'living in a period when knowledge is catching up and re-forming, where everything is in flux'.<sup>72</sup> In this concern for intellectual rather than financial acquisition, Mitchison characterises scientific knowledge as the paradigm of development – of people as well as fields. That same year, while appearing on a contentious panel about Scottish literature, 'Mitchison made the rather cryptic comment that some of the most important writing of the time was emerging from university science departments'.<sup>73</sup> It is no surprise, then, that this new protagonist is skilled in scientific as well as literary uses of language, able to cross genres with ease.

While critics have quite understandably focused on Mary's cross-species communication, a new model of development emerges from Mitchison's scientist-communicator when we consider Mary as author as well as protagonist.<sup>74</sup> Mary herself links her scientific skills to her writing skills: 'I was thought to be good at communication', she recalls of her entry into space exploration, and she adds, '(I am, of course, or you would not be understanding this page which you are reading) ...'.<sup>75</sup> Her assertion that communications are simultaneously a scientific and literary endeavour advances a more flexible model of self-formation, for the laudable instability of scientific knowledge promotes the instability of the knowing (and narrating) self.

Mary foregrounds the degree to which the subject is in perpetual formation through frequent reference to the need to stabilise personality – her own and her children's. This steadying of the self is both a necessity



and an impossibility. As Mary describes the year her mother took from space exploration to 'stabilize' her as an infant, she observes,

I suppose one of the things which one finds it hardest to take is that one must develop a stable personality and yet that inevitably it will be altered by the other forms of life with which one will be in communication, and that these biophysical alterations must be accepted. And can only be accepted by the stable. And that the achievement of stability alone, even after what the mother has done in the first year, takes half an old-fashioned lifetime.<sup>76</sup>

In short, the explorer's development first requires stability, but these boundaries of the self are built only to be permeated – psychologically, linguistically, and biologically – by other selves in other worlds.

Even more, this development does not necessarily bring improved standing in the community; indeed, Peder prescribes humiliation in place of ascension:

He said that one must be ready to be taken in ... because there must be no barriers between oneself and other entities ... Out of the very bottom, when the moral and intellectual self one so carefully builds up has been pulled down ... then one may at last and genuinely observe and know. And the process of humiliation, Peder said, must happen again and again.<sup>77</sup>

This experienced explorer privileges knowledge obtained through observation rather than through action and external conflict. In place of distinction comes the dissolution of the self, with 'one' often slipping into Mary's writing in place of 'I'. The goal for the spacewoman – and, we might say, Mitchison as a novelist – is not to build the self but to pull it down. The individual dissolves into the research, the perpetual education; Mary's development occurs not by overcoming hostile environments but by being radically transformed by her social and ecological surroundings. Correction of knowledge in scientific research thus substitutes for the failure central to Castle's modernist Bildungsroman.

In this supposed memoir, Mary is the eyes through which we see rather than the constant object of our vision, and Mary's most transformative moments are precisely those in which her individuality dissolves. On her first journey, she finds her thought and moral codes adjusting to those of the radial lifeforms she encounters. As she witnesses their tendency to use 'group names', she 'beg[ins] to forget [her] own name', and in place of the two-eyed, two-eared, and two-handed being's binary thinking, she 'com[es] more and more into tune with the five-choiced world'.<sup>78</sup> As Mary learns, adaptation may inhibit the survival of the self. Even more, these encountered worlds redefine subjectivity and potentially literary character itself, for Mary notes that some lifeforms do not exist on a 'recognisable scale': 'The real difficulty comes', she says, 'when there is, for example, some type of intelligence spreading thinly over an entire galaxy'.<sup>79</sup>



In line with this dispersal of self, Mary's fictional memoir ends with an episode in which the self ceased to be, when she merely observes another who occupies her body. After volunteering to let an alien lifeform be grafted onto her in a sort of pseudo-pregnancy, Mary finds her personality dissolving, and others must restrain her so the graft can be removed. She recounts her recovery:

It was during the discussion that I had a good look at the very curious photographs which Pete had taken of me with my graft; it gave me peculiar residual feelings even now. Yes, I had been somebody else. Somebody, from a scientific point of view, delinquent.<sup>80</sup>

In this instance, the narrating self has little relationship to the past self. The memoir is occupied by this 'somebody else', a person not outside time but outside the bounds of self. The risk of interfering in other worlds through overidentification is coupled with the risk of another's interference in one's personality, for Mary risked losing her vocation by developing into somebody 'anti-scientific'.<sup>81</sup> Françoise, the explorer who becomes a 'prisoner of time', thus serves as a double for Mary, who might just as easily have had her own development permanently halted.<sup>82</sup>

This pairing of Mary and Françoise – *Bildung* achieved and *Bildung* thwarted – aligns with Mitchison's ambivalence towards the closure provided by romance plots in female novels of development. As Mary leaves with Peder to have another child, she observes that 'Françoise was crying a little when we said goodbye. I think she envied me, perhaps for more reasons than one'.<sup>83</sup> In these closing lines, it's impossible to tell whether Françoise envies Mary's continued development through exploration, in line with Mitchison's revised Bildungsroman, or her coupling with Peder, in line with the genre's realist foundations. The romance plot certainly offers an opportunity for closure within the insistent episodic narrative. Yet the temporary nature of pairings in this future world, combined with the cross-species couplings and threats of incest prompted by time blackout and unsettled processes of aging and parenting, means that romantic stability, like that of the self, is short-lived. In this fictional memoir, it is the sudden death common to explorers that brings *anticipated* narrative closure, though even that is preceded by degeneration, for Mary describes the stage 'beyond middle life' as one in which 'the inevitable degenerative processes are already taking place, affecting the mind as they affect the tissues'.<sup>84</sup> Individual degeneration, like that wrought by colonialism, haunts Mitchison's Bildungsroman and its model protagonist, for, against the unfertilised butterfly's endless life and despite the explorer's extended education, the mature researcher represents both development and decline.

Indeed, Mitchison anticipates an end not only to the spacewoman's development but also to the social and vocational structures that enabled that development, the world in which the Bildungsroman would work. Of maturity in *Memoirs*, Haraway notes, 'interference, making contact, is the implicit condition of leaving the nursery world', yet, in contemplating Françoise's interference, Mary imagines a time when the observing self's mere presence would be considered too antagonistic:

Perhaps in another dozen generations or so we shall get to the point where we feel it is wrong to commit even the interference of being in an alien world. Which would mean the end of space travel. Or would it? Could we perhaps become totally imperceptible? But we cannot see that far and it would be dull if we could.<sup>85</sup>

Even as Mitchison envisions a geographic and temporal expansion of self-development, she envisions its eventual contraction, along with the profession she used to form her new protagonist. For the Bildungsroman to survive in this far future, the self that anchors that novel must 'become totally imperceptible'; all interaction – and harmonisation – with these new worlds must be eliminated, though this state would perhaps exceed humanity and its capabilities. After transforming the Bildungsroman through merging it with future fiction, Mitchison emphasises the mature writer's limited view of (and access to) the future. The world in which the Bildungsroman works is, ultimately, an 'alien world'.

## Notes

1. For Mitchison as a time traveller, see, for instance, Isobel Murray, introduction to *Memoirs of a Spacewoman*, by Naomi Mitchison (Glasgow: Kennedy & Boyd, 2011), vii and Carla Sassi, 'The Cosmic (Cosmo)Polis in Naomi Mitchison's Science Fiction Novels', in Caroline McCracken-Flesher (ed.), *Scotland as Science Fiction* (Lanham, MD: Bucknell University Press, 2012), p. 50.
2. See Naomi Mitchison, *You May Well Ask: A Memoir 1920–1940* (London: Victor Gollancz, 1979), pp. 101, 166.
3. Jenni Calder, 'More Than Merely Ourselves: Naomi Mitchison', in Douglas Gifford and Dorothy McMillan (eds), *A History of Scottish Women's Writing* (Edinburgh: Edinburgh University Press, 1997), p. 444.
4. Murray, introduction, vii. I will hereafter refer to *Memoirs of a Spacewoman* as *Memoirs*.
5. Naomi Mitchison, *Memoirs of a Spacewoman* (Glasgow: Kennedy & Boyd, 2011), pp. 10, 14.
6. Despite Mitchison's shift to future fiction as a means of exploring the future of individual development, the inhabitants of this groundbreaking novel also journey to the far reaches of the past, revealing the full complexity of the explorer's experience of developmental time. Mary describes her daughter's aptitude for the 'fascinating and genuine research work, whether on our own planet or others', of the 'back-time explorers', and she describes the special training and education necessary for the profession (p. 138). This

field tests the explorer's relationship to the social world, for '[i]n back-time research one has to isolate oneself entirely from the scene observed' (p. 139). Thus, even as Mitchison describes the collective and complex research directed from this future Earth, the individuals responsible for this work find themselves subjected to a series of hardships that test their education, vocational calling, and development as explorers: in short, the material of the Bildungsroman.

7. Mitchison, *Memoirs*, pp. 55, 11. In much the same way, when describing the lack of privacy as she processed an emotionally jarring event, Mary inserts, 'You know how little room there really is in a spaceship' (p. 83).
8. Mitchison, *Memoirs*, p. 145.
9. Naomi Mitchison, *Small Talk: Memories of an Edwardian Childhood* (London: The Bodley Head, 1973), p. 28. Mitchison's first chapter is titled 'Becoming Oneself'. Mitchison published these memoirs in three volumes: *Small Talk* (1973), *All Change Here* (1975), and *You May Well Ask* (1979).
10. Mitchison, *Memoirs*, p. 5.
11. Gregory Castle, *Reading the Modernist Bildungsroman* (Gainesville: The University Press of Florida, 2006), p. 3.
12. *Ibid.*, pp. 1, 3.
13. *Ibid.*, p. 5.
14. *Ibid.*, pp. 4, 9.
15. *Ibid.*, p. 252.
16. Castle, *Reading*, pp. 252–3.
17. *Ibid.*, p. 253. In this way, the past towards which Mitchison looks is actually the time of writing.
18. See Castle, *Reading*, pp. 126–9.
19. Through exploring this limit case for the novel of formation, Mitchison presents an alternative understanding of character development. Aided by the fictionalised memoir form, Mitchison's communications specialist serves not only as a maturing protagonist but also as a stand-in for the novelist in an era of rapidly expanding group affiliations, as the nation appeared to be on the brink of yielding to larger and larger imagined communities. Through formulating a vast array of imagined worlds, each with an imagined code of conduct, Mitchison shows her spacewoman reconciling herself not with a single community but with community after community. It is the transitoriness of these affiliations that is instructive—indeed, the spacewoman seeks to become reconciled to change as a law in itself.
20. Jed Esty, *Unseasonable Youth: Modernism, Colonialism, and the Fiction of Development* (Oxford: Oxford University Press, 2012), pp. 2, 3, 3.
21. *Ibid.*, p. 5.
22. *Ibid.*, p. 7.
23. *Ibid.*, p. 3. Esty identifies 'a central, yet surprisingly underexplored nexus between modernist aesthetics and modern colonialism: the disruption of developmental time in reciprocal allegories of self-making and nation-building' (p. 2). In this way 'Modernism exposes and disrupts the inherited conventions of the bildungsroman in order to criticize bourgeois values and to reinvent the biographical novel, but also to explore the contradictions inherent in mainstream developmental discourses of self, nation, and empire' (p. 3).
24. Donna Haraway, 'Otherworldly Conversations, Terran Topics, Local Terms', in Stacy Alaimo and Susan Hekman (eds), *Material Feminisms* (Bloomington:

Indiana University Press, 2008), p. 180. While Haraway describes this as a paternal inheritance, Mitchison in *Small Talk* attributes a robust belief in British imperialism to her mother, who 'brought us up on' the narrative of "the white man's burden" and whose political commitments differed from those of Mitchison's father. 'Which of us don't romanticise otherwise brutal and nasty political realities?', Mitchison acknowledges, while explaining her break from her mother's politics as she grew into adulthood (p. 50).

25. Haraway, 'Otherworldly', p. 180.
26. Ibid.
27. In *Small Talk*, Mitchison recounts her childhood reading and games, under her mother's influence and in light of Mitchison and her brother's participation in League of the Empire events (p. 87): 'Jack and I were very good friends and talked a lot between rowing; I'm sure the British Empire came into it. Both of us read Kipling' (p. 81).
28. Mitchison, *Memoirs*, pp. 26–7.
29. Ibid., p. 29.
30. Ibid., p. 36.
31. Mary implies that the end of imperialism made possible these new achievements, for she reminds her colleague and sexual partner, a black man, that 'there had been plenty of African changers' (p. 138) when they choose a name for their daughter, the future back-time explorer. Paired with an end to conflict on Terra, planetary contact zones reveal Terran political change, for Mary observes, 'We are better than we used to be at respecting and getting on with unaccustomed forms of life' (p. 53).
32. Esty, *Unseasonable*, p. 2.
33. Mitchison, *Memoirs*, p. 154.
34. Ibid., p. 171.
35. Esty, *Unseasonable*, p. 4.
36. Mitchison, *Memoirs*, p. 74. Mitchison reflects on the absence of economics in her education as an upper-class woman: 'I had absolutely no consciousness of economic facts, nor was this even mentioned at school and barely in any history book I read in my teens', for in her world, 'money was dirt. It should be no concern of ladies except in such small quantities as not really to count'. *Small Talk*, p. 113.
37. Esty, *Unseasonable*, p. 3.
38. Ibid., p. 22.
39. Ibid.
40. Ibid., p. 35.
41. The spacewoman's resolve to produce greater and greater cross-species communication while treating each species on its own terms expands upon the work of literary critical importance that Esty identifies in his body of novels: 'The texts examined here, in all their variety, cut the process of aging from between the twin plot points of youth/exposition and death/closure, removing the connective tissue definitive of historicism itself. The resulting form establishes a dialectical rather than an antinomial relation between world-historical development aimed at a shared destiny and a world of static, anthropologized differences splayed on a planetary grid' (p. 202). Esty thus argues that these novels thwart the 'theoretical impasse' (p. 201) that exists between literary critics who insist on 'alternative modernities' and those who insist on 'a singular modernity' when conceptualising literary and historical development (p.

200). I would argue that Mitchison's future fiction does similar work, though for different purposes. As the explorer's voyages and research work reinforce her guiding concept of 'shared destiny', her efforts to exist as 'observer', to record but not to interfere with zoological difference written as cultural difference, preserve these two models of development.

42. Esty, *Unseasonable*, p. 2.
43. Mitchison, *Memoirs*, p. 6.
44. Esty, *Unseasonable*, p. 3.
45. See, for example, Julian S. Huxley, 'Metamorphosis of Axolotl caused by Thyroid-feeding', *Nature* 104 (January 1920), p. 435.
46. Mitchison, *Memoirs*, p. 9.
47. *Ibid.*, p. 24.
48. Esty, *Unseasonable*, p. 213.
49. Mitchison, *Memoirs*, p. 5.
50. *Ibid.*, p. 24.
51. Accordingly, instead of youths who do not grow up, Mitchison offers parents who do not seem to age. Adult explorers undergo only 'a temporary surrender to time', as Mary explains: 'There are moments, aren't there, when surrender is delicious, even to that old enemy' (p. 8).
52. Esty, *Unseasonable*, p. 27.
53. *Ibid.*
54. In the introduction to the Science Fiction Master Series edition, Hilary Rubinstein notes the formal effect of Mary's encounters with other worlds: '*Memoirs of a Spacewoman* bears little resemblance to a conventional novel: it has no significant beginning or climax, no plot, and its characterisation, apart from that of the space heroine herself, is rudimentary. It doesn't even pretend very hard to spoof memoirs; it says little or nothing of Mary's early life, but simply tells a series of related anecdotes about inter-planetary scientific research'. Hilary Rubinstein, introduction to *Memoirs of a Spacewoman*, by Naomi Mitchison (London: New English Library, 1976), p. 5. By stating that Mitchison 'doesn't even pretend very hard to spoof memoirs', Rubinstein emphasises the seeming formlessness of Mitchison's presentation of a life, though Isobel Murray, in response to Rubinstein's assessment, argues that Mary 'combin[es] her general world-account and a more personal one' through narrating 'her early days', fulfilling her first chapter's 'promise of unfolding plot and further discoveries'. Murray, introduction, p. x. For the 'ruminative picaresque', see *The Encyclopedia of Science Fiction*, s.v. 'Mitchison, Naomi', last modified July 20, 2020, [http://www.sf-encyclopedia.com/entry/mitchison\\_naomi](http://www.sf-encyclopedia.com/entry/mitchison_naomi).
55. Mitchison, *Memoirs*, p. 137.
56. *Ibid.*, p. 136.
57. *Ibid.*, p. 7. Mitchison in this way portrays a cycle of formation and re-formation across the space explorer's lifecycle, though Mary describes a special sort of education that takes place in youth, as preparation for intergalactic research: 'One reads and watches, one steep[s] oneself in 3D and 4D', she reports, 'one practises detachment in the face of apparently disgusting and horrible events; one practices taking bizarre points of view' (p. 7). Maturity comes through imitating the adult self until one is ready to assume those roles, yet being a communications specialist means 'taking bizarre points of view'. As a result, Mitchison's spacewoman describes maturity not in terms

of adolescent uncertainty that leads into settled adulthood; instead, she observes, 'The difficulty seems to be that in the nursery world we take ourselves for granted as stable personalities, as completely secure. Impossible that we should ever deviate.... How young can one be!' (p. 9) Defining youth through its illusion of fixedness, Mary discounts the idea of closure achieved through reaching a point of mature stability.

58. Ibid., p. 124.
59. Ibid., p. 129.
60. Ibid., p. 133.
61. Maroula Joannou, 'The Female Bildungsroman in the Twentieth Century', in Sarah Graham (ed.), *A History of the Bildungsroman* (Cambridge: Cambridge University Press, 2019), p. 202.
62. Ibid., p. 200.
63. Jennifer A. Wagner-Lawlor, *Postmodern Utopias and Feminist Fictions* (Cambridge: Cambridge University Press, 2013), p. 6.
64. Ibid., 24.
65. Ibid.
66. Naomi Mitchison, *Among You Taking Notes: The Wartime Diary of Naomi Mitchison 1939–1945*, ed. Dorothy Sheridan (Oxford: Oxford University Press, 1986), p. 172. This assessment comes in the 22 December 1941 entry of the diary Mitchison kept for Mass-Observation during the Second World War.
67. As Mary observes of her own scientific work, 'somehow the disciplines of life seem more congenial to most of us women' (p. 9).
68. Tobias Boes, 'Apprenticeship of the Novel: The *Bildungsroman* and the Invention of History, ca. 1770–1820', *Comparative Literature Studies* 45.3 (2008), p. 282. Of this retrospective narration, Boes writes, 'the protagonist, at the end-point of his or her development, eventually crosses an ontological barrier where historical contingency yields to something altogether different and the *narrated* subject makes way for a *narrating* subject' (p. 282).
69. Mitchison, *Memoirs*, p. 137.
70. Even more, Mary insists on a *female* professional legacy, as she describes her career development in relation to that of her explorer mother and daughter. Because she can fulfil herself both professionally and sexually, Mary realises 'the kind of dream many of us had' in the mid-twentieth century, as Mitchison records: 'I sometimes hoped I was fighting for more freedom, for a whole generation of women. My daughters perhaps? Who, I dreamed, would be able to have children by several chosen fathers, uncensored' (*You*, p. 73). Taking advantage of the freedoms of this future society, Mitchison's spacewoman provides an imaginative resolution to the contradictions in and challenges to Mitchison's own self-authorship.
71. Castle, *Reading*, p. 3.
72. Naomi Mitchison, *What the Human Race is Up to* (London: Gollancz, 1962), pp. 5, 6.
73. Eleanor Bell, 'Experiment and Nation in the 1960s', in Glenda Norquay (ed.), *The Edinburgh Companion to Scottish Women's Writing* (Edinburgh: Edinburgh University Press, 2012), p. 123.
74. Donna Haraway, for instance, praises *Memoirs* for showing how '[t]he subject-making action—and the moral universe—really begins once [species] establish touch' (p. 182).

75. Mitchison, *Memoirs*, p. 10.
76. Ibid., pp. 8–9.
77. Ibid., pp. 40–1.
78. Ibid., pp. 19, 19, 20.
79. Ibid., p. 72.
80. Ibid., p. 175.
81. Ibid., p. 162.
82. Ibid., p. 136.
83. Ibid., p. 176.
84. Ibid., p. 125.
85. Haraway, 'Otherworldly', p. 182; Mitchison, *Memoirs*, p. 140.

### **Disclosure statement**

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